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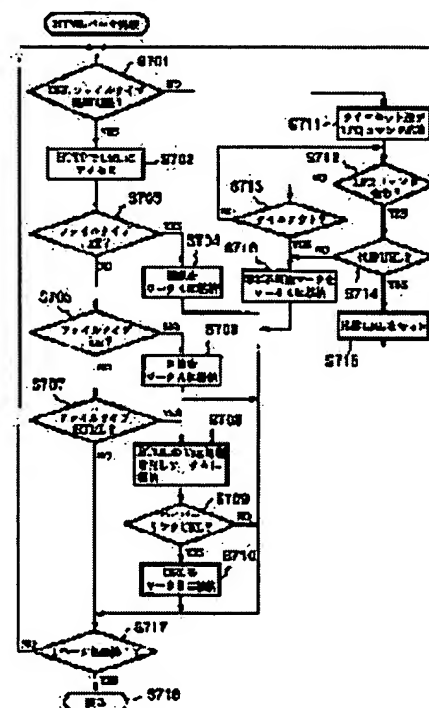
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(54) IMAGE FORMING APPARATUS AND METHOD, AND RECORDING MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To supply a recording medium on which a program code of software realizing the function of an execution form is recorded in a system or apparatus to read and execute the program code stored in the recording medium by the computer (or CPU or MPU) of the system or apparatus.

SOLUTION: When data is obtained from a WWW server to be printed, it is judged whether the linked data of URL is printable (S701) and, in a case impossible to print (S701-No), data conversion processing is performed on the side of an external terminal and, by designating the processing result as a substitute URL (S715), data incapable of being usually printed only by an image forming apparatus is converted by using the external terminal to be made printable.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the record medium which recorded the program for making a computer perform the approach of accessing and carrying out image formation to the image formation equipment and the WWW server which have the function accessed to a World-Wide-Web server (it is henceforth called a WWW server), and its approach.

[0002]

[Description of the Prior Art] It is possible to connect in a network the computer which carried the exclusive software (it is henceforth called a browser) for accessing by HTTP (Hyper Text Transfer Protocol) to the WWW server which carried various information soon, and this server, and to refer to the information on a WWW server from a computer. Thereby, with reference to the information on a specific WWW server, it can share now from two or more computers.

[0003] Furthermore, since the above-mentioned browser stored the information on a WWW server in a computer, the user could also print the information on a WWW server by directing the printout of the information once stored in the computer to the information machines and equipment which have a print facility.

[0004] Moreover, information machines and equipment can also print now by carrying out direct access and acquiring information to the WWW server directed by the user because the information machines and equipment itself which has the above-mentioned print facility have an accessing function to a WWW server (this function is henceforth called Pull Print).

[0005]

[Problem(s) to be Solved by the Invention] The external image which displays an image using the in-line image and external program which display an image directly is in the page of HTML. The graphics format to which an in-line image is called GIF and JPEG is mainly used. As long as there is even an external program which can process the graphics format, what kind of format is sufficient as an external image. The image which keeps watch for an in-line image directly in a HTML page is said, and the tag is used. As for an external image, the HREF attribute of the <A> tag is used.

[0006] Although it is easy to build a required external program into a computer in a browser, there is equipment which cannot incorporate a program easily like Pull Print of information machines and equipment. Since processing of the external image which displays an image cannot be performed, it may be finished as Pull Print of such information machines and equipment without being able to print as it is. Moreover, since a format of an in-line image does not have a limit, either, printing processing may not be able to be carried out.

[0007]

[Means for Solving the Problem] The purpose of this invention is reducing the HTML page which is the above-mentioned trouble and which cannot be printed. The image formation equipment concerning this invention, the image formation approach, and a record medium mainly consist of the following configurations that the above-mentioned purpose should be solved.

[0008] Namely, an assignment means to specify address information for image formation equipment to specify the data on a server, A data acquisition means to acquire the data on said server according to said specified address information, A judgment means to analyze said acquired data and to judge the generation propriety of print data, An image formation means to generate print data based on said judgment, the printing means for printing said generated print

data, and when generation of print data cannot be performed based on said judgment, it has a notice means to notify that it is ungenerable.

[0009] Moreover, a receiving means to receive address information for image formation equipment to specify the data on a server specified at the external terminal, A data acquisition means to acquire the data on said server according to said address information which received, A judgment means to analyze said acquired data and to judge the generation propriety of print data, An image formation means to generate print data based on said judgment, the printing means for printing said generated print data, and when generation of print data cannot be performed based on said judgment, it has a notice means to notify to said external terminal.

[0010] Moreover, when judged with print data being ungenerable with said judgment means, said data acquisition means acquires substitute address information from an external terminal, and acquires data.

[0011] Moreover, the address information of said alternative is URL which specifies the data which carried out transform processing of the data which cannot be printed.

[0012] Moreover, the assignment process which specifies address information for the image formation approach to specify the data on a server, The data acquisition process which acquires the data on said server according to said specified address information, The judgment process which analyzes said acquired data and judges the generation propriety of print data, When generation of print data cannot be performed based on said judgment with the image formation process which generates print data based on said judgment, and the presswork for printing said generated print data, it has the notice process which notifies that it is ungenerable.

[0013] Moreover, the receiving process which receives address information for the image formation approach to specify the data on a server specified at the external terminal, The data acquisition process which acquires the data on said server according to said address information which received, The judgment process which analyzes said acquired data and judges the generation propriety of print data, When generation of print data cannot be performed based on said judgment with the image formation process which generates print data based on said judgment, and the presswork for printing said generated print data, it has the notice process notified to said external terminal.

[0014] Moreover, when judged with print data being ungenerable with said judgment process, said data acquisition process acquires substitute address information from an external terminal, and acquires data.

[0015] Moreover, the address information of said alternative is URL which specifies the data which carried out transform processing of the data which cannot be printed.

[0016] Moreover, the record medium in which computer read is possible The assignment process which specifies the address information for specifying the data on a server, The data acquisition process which acquires the data on said server according to said specified address information, The judgment process which analyzes said acquired data and judges the generation propriety of print data, When generation of print data cannot be performed based on said judgment with the image formation process which generates print data based on said judgment, and the presswork for printing said generated print data The program for making a computer perform the notice process which notifies that it is ungenerable is recorded.

[0017] Moreover, the record medium in which computer read is possible The receiving process which receives the address information for specifying the data on a server specified at the external terminal, The data acquisition process which acquires the data on said server according to said address information which received, The judgment process which analyzes said acquired data and judges the generation propriety of print data, When generation of print data cannot be performed based on said judgment with the image formation process which generates print data based on said judgment, and the presswork for printing said generated print data The program for making a computer perform the notice process notified to said external terminal is recorded.

[0018]

[Embodiment of the Invention] The operation gestalt which starts this invention below is explained to a detail.

[0019] (1st operation gestalt)

<System configuration> drawing 1 is an image formation structure-of-a-system Fig. concerning the operation gestalt of this invention. The digital copier 1 which plays the central role of this system The hard disk 3 for storing image data etc. and various programs, The network interface section 4 for communicating with an external instrument through a network, The control unit 5 for performing the directions of operation to a self-opportunity on a digital copier 1, The formatter section 6 which changes the print data sent from the external instrument through a network into the format which can be printed with a digital copier 1, It consists of the digital image reading section (it is called a "reader"

below) 7, the digital image print section (it is called a "printer" below) 8 which carries out the printout of the digital image arranged under it, and the core section 2 for unifying all these components and carrying out coordination actuation.

[0020] Moreover, the application server 11 for performing image expansion processing of URL specified as the client terminal 9 for performing assignment of URL and image expansion processing of URL specified [which were specified and was printing-directed] to the above-mentioned digital copier 1, and the WWW (World Wide Web) server 10 directed by URL via the Internet are connected to the network.

[0021] <Core section block diagram> drawing 3 is a block diagram in the core section 2. It connects with the reader section 7 through the digital interface 121, and, on the other hand, the core section 2 is connected with a hard disk 3, the computer interface section 4, a control unit 5, and the formatter section 6 through the bus.

[0022] While the image data read in the reader section 7 is transmitted to the data-processing section 124 through I/F121, the control command from the reader section 7 is transmitted to CPU122. The data-processing section 124 performs image processings, such as rotation processing of an image and variable power processing, and the image data transmitted to the data-processing section 124 from the reader section 7 is transmitted to a hard disk 3 and the computer interface section 4 through I/F120 according to the control command transmitted to image data and coincidence.

[0023] Moreover, if a print request command is sent through the computer interface section 4 from the external client 9, CPU122 will transmit the data sent to coincidence to the formatter section 6.

[0024] Then, after being developed by image data in the formatter section 6 and being transmitted to the data-processing section 124 finally, data are transmitted to the printer section 8 and a printed output is carried out. CPU122 performs such control according to the control program memorized by memory 123 and the control command transmitted from the reader section 7. Moreover, memory 123 is used also as a working area of CPU122.

[0025] Thus, it is possible to perform processing which the core section 2 controlled [processing] the data flow between each of the reader section 7, a hard disk 3, the computer interface section 4, and the formatter section 6, and compounded functions, such as I/O of reading of a manuscript image, the print of an image, and data with a computer.

[0026] <Program configuration of the network interface section> drawing 4 is drawing explaining the program configuration of the network interface section 4.

[0027] IP (Internet Protocol) of 405 is the protocol hierarchy of the Internet which offers the service which sends a message, cooperating with junction nodes, such as a router, from a dispatch host to a destination host. The information most important for sending a message is the address of dispatch and the destination, and is managed by IP protocol. According to address information, routing in what kind of path even a destination host sends the inside of the Internet system performs a message in IP layer.

[0028] TCP (Transmission Control Protocol) of 404 and UDP (User Datagram Protocol) are transport hierarchies, and are a hierarchy who offers the service which sends a message into a receiving application process from a dispatch application process. Although communicative advanced dependability is guaranteed, since TCP is connection mode service and UDP is service of a connectionless mode, a guarantee of dependability is not offered.

[0029] 401 is an application hierarchy's protocol and TELNET which is remote login service, FTP which is file transfer service, SNMP which is a network management protocol, LPD which is a server protocol for printer printing exist.

[0030] Moreover, HTML Parser402 which changes the data and the image data of the HTTP client 403 in which a WWW server carries out data acquisition, and the acquired HTML format into the data format for printing on a form exists in application.

[0031] In a <explanation of Web Pull Print> book operation gestalt, after a digital copier 1 accesses an external WWW server actively and acquires the HTML data in a WWW server, the function which prints with its copying machine is called Web Pull Print. The following two approaches exist in the approach a user demands Web Pull Print from a digital copier 1. One is the approach of performing using the exclusive program (it being called a "print utility" below) which is operating on the external client 9, and another is the approach of performing using the control unit 5 of a digital copier 1.

[0032] <the case where a print utility is used> -- Web Pull Print which used the print utility on the external client 9 is explained first.

[0033] A user can perform various setup about Web Pull Print using a print utility, and can transmit the contents of a setting to a digital copier 1 using the packet mentioned later. On the other hand, the digital copier 1 which received this packet analyzes the contents of the packet, and starts Web Pull Print actuation according to those contents of directions.

[0034] Moreover, the digital copier 1 has the function to spool two or more Web Pull Print demands received from the print utility in the form of a job. And a print utility communicates with a digital copier 1 using the packet mentioned later, can acquire the information about the job currently spooled to the interior, or can delete a specific job. Here, drawing 38 is the list of the items which a user can set up using a print utility.

[0035] Drawing 5 - drawing 11 are the actuation screens of a print utility. If a print utility is started on a client 9, the actuation screen of drawing 5 will be displayed first. When setting up item (6) - (38) listed by drawing 38, the actuation screen of drawing 6 is newly displayed by depressing the "Print Setup" carbon button (601) on this actuation screen. Furthermore, by depressing the tag of this actuation screen upper part, it can move to the actuation screen of drawing 7 - drawing 9. By depressing "O.K." (606)/"Cancel" (607) carbon button on the actuation screen of drawing 6 - drawing 9, it can return to the actuation screen of drawing 5.

[0036] Moreover, the bookmark screen of drawing 10 is newly displayed by depressing the "Bookmark" carbon button (602) at the upper right of [actuation screen] drawing 5. A bookmark is what made URL and the title of a homepage the list, and when the already registered bookmark exists, the contents of the list are displayed on this screen. When specifying URL from the inside of a list, it is depressing the "O.K." carbon button (606), where the inverse video of the target URL is chosen and carried out, and a title and URL are reflected in the input on the actuation screen of drawing 5 (501 502).

[0037] When newly adding a title and URL, after inputting a title and URL into 501 on the actuation screen of drawing 5, and 502, respectively, they are added to an above-mentioned list by depressing the "Add Bookmark" carbon button (605).

[0038] A user opens each actuation screen of drawing 5 - drawing 9 by the above-mentioned approach by the client 9, and can set up a required item. And if the actuation screen "Print" carbon button (604) of drawing 5 is depressed after all setup is completed, a print utility will transmit the contents of a setting to a digital copier 1.

[0039] Furthermore, if the "Monitor" carbon button (603) is depressed on the actuation screen of drawing 5, the actuation screen of drawing 11 will be displayed. Under the present circumstances, a print utility communicates with a digital copier 1, acquires the information about the job currently spooled in the digital copier 1, and displays it on an actuation screen (drawing 11). A user can grasp processing progress of the job currently spooled by referring to these contents of a display.

[0040] Moreover, a user can also delete the job currently spooled. In this case, a user chooses and does the inverse video of the job to delete out of the job information currently displayed on the actuation screen, and the "Delete" carbon button (608) is depressed. Then, a job number deletes a match out of the job which is spooling the digital copier 1 which the print utility transmitted the deletion demand containing the job number of the specified job to the digital copier 1, and received this deletion demand.

[0041] Moreover, if URL is displayed for the check of access of URL and the "ConfirmACCESS" carbon button (un-illustrating) is pushed, a digital copier 1 will print on the URL by going to access. If the "NotACCESS" carbon button (un-illustrating) is pushed, a digital copier 1 will not go to the URL to access, but will process the following URL.

[0042] <Processing by HTML Parser-HTTP client> drawing 22 to drawing 27 is a flow chart which prints the homepage of a WWW server using the program of HTML Parser402 and HTTP client 403 grade. Hereafter, the flow of overall processing is explained using this flow chart.

[0043] The print utility and digital copier 1 on a client 9 are communicating using the LPR protocol which is a higher-level protocol of TCP/IP. In the network interface section 4 of a digital copier 1, LPD (Line PrinterDeamon) is operating and LPD receives the Web Pull Print demand / job information requirements / job deletion demand from a print utility as an LPR command / LPQ command / a LPRM command, respectively (S501, S502).

[0044] Under the present circumstances, into the data file in an LPR command packet, each parameter set up in the print utility is stored as character-string data, and is sent at LPD. Drawing 39 is an example of this data file. As shown also in drawing, character-string data start in "START_OF_NETRETRIEVER_PARAMETERS" and finish it as "END_OF_NETRETRIEVER_PARAMETERS."

[0045] Each parameter is described by in the form of the "parameter name = value." (The number of the right-hand side in drawing is for matching with the serial number in contents explanation of the setting item of the print utility mentioned above, and is not described by the actual data file.)

However, a "printing document title" and a "user name" are stored in the control file in an LPR command packet in the

parameter set up in the print utility. Drawing 12 is an example of this control file.

[0046] Since the data which communicate on a network as an LPR command packet are only a setting parameter required for printing, as compared with the case where the data changed into the format which can print homepage data like the conventional example are poured to a network, there is very little the amount of data, and it ends.

[0047] On the other hand, in the core section 2, the command reception processing for receiving the demand command from LPD is always operating, and LPD is changed into the format which shows the LPR command / LPQ command / the LPRM command from a print utility to drawing 13, and is sent to command reception processing. The identifier showing a command type (LPR/LPQ/LPRM) is added to the head of this format, and command reception processing judges a command type with reference to that identifier, and analyzes the contents of the command to compensate for each format (S502).

[0048] In addition, a demand command is published also from schedule job processing mentioned later (S503). The above is explanation about the approach of requiring Web Pull Print using a print utility.

[0049] Web from < control unit Pull How to require Web Pull Print using demand [of Print] >, next the control unit 5 of a digital copier 1 is explained.

[0050] When drawing 21 pushes the Web Pull Print mode carbon button 304 from drawing 16, it is the screen in display ***** Web Pull Print mode.

[0051] It is displayed on the window 300 of drawing 16 that it is a present Web Pull Print printing mode, and it shows that they are A4 paper size / 100% of dilation ratios, and 1 section printing in it. On the URL carbon button 331, the domain name of the WWW server to access and the file name of the data of the HTML format to acquire are displayed. The alphabet keyboard which is not illustrated by pushing this carbon button is displayed, and a character string can be inputted.

[0052] The printing time-of-day carbon button 332 is a carbon button for opening the window (drawing 17) which sets up the date which starts Web Pull Print, time amount, etc.

[0053] Since the contents of the parameter set up in a window are the same as that of it of drawing 9, detailed explanation is omitted. If the BOOK MARK key 334 (drawing 16) is depressed, the BOOKMARK window of drawing 18 will be displayed. If the time designated list carbon button 335 is depressed, the time designated list window of drawing 19 will be displayed. If the standby job list key 336 is depressed, the standby job list window of drawing 20 will be displayed.

[0054] If the log carbon button 337 (drawing 16) is depressed, the log list window of drawing 21 will be displayed. The detail setup key 338 is a key which displays the menu window for setting the detailed parameter about Web Pull Print. The parameters set up in this window are all the things excluding print sheet size / double-sided printing / sorter / URL / schedule printing setup / day-of-the-week assignment / date assignment / time designated / spacing assignment from the list of drawing 38.

[0055] The activation result of each job is displayed on the log list window of drawing 21. When the maximum number which it is displayed in an order from the new thing of activation time of day, and can be displayed on a screen is exceeded, it is deleted from a list automatically from an old thing. The contents of a display are displays 396 as a result of URL393, a date 394, and time amount 395 (drawing 21).

[0056] URL393 is URL of the accessed WWW server, and a date 394 and time amount 395 are the dates and time of day which accessed the WWW server. WWW -- a server -- access -- and -- printing -- normal -- carrying out -- having had -- a job -- 388,391,392 -- a result -- a result -- a display -- 396 -- " -- normal termination -- " -- ***** -- displaying -- having -- a user -- a reset key -- printing -- having been interrupted -- a job -- 389 -- a result -- a result -- a display -- a column -- 396 -- " -- reset -- termination -- " -- ** -- displaying -- having -- a network -- WWW -- a server -- a condition -- etc. -- normal -- it was not able to print -- a job -- 390 -- a result -- a result -- a display -- 396 -- " -- an error -- termination -- " -- ***** -- displaying -- having .

[0057] If the start button 319 of drawing 16 is finally pushed after setting up the required parameter about Web Pull Print mentioned above in each setting window, a Web Pull Print demand command will be published about command reception processing from a control unit 5. The above is explanation about the approach of requiring Web Pull Print using a control unit 5.

[0058] In drawing 22, since the print directions instruction from a control unit 5 and the print command instruction from schedule job processing are the same data formats (refer to drawing 13) as the print directions instruction from a client 9, command reception processing (S504) can treat systematically the print request directions instruction from

these three places (S501, S500, S503). From a client 9 and a control unit 5, the deletion instruction of a job other than a print directions instruction is published the inquiry instruction of a job, the deletion instruction of a schedule job, and instance.

[0059] In drawing 22, URL access processing (S505) operates so that HTML data, image data, etc. which are data of a homepage may be acquired from a WWW server and image data may be created.

[0060] It checks whether the cancellation flag stands in step S506 after termination of URL access processing (S505) of operation. When the cancellation flag stands, printing termination processing is performed (S510), and the message of the purport which canceled the print to the issue origin of the stopped job is transmitted, and it ends (S512). (S511)

[0061] When the cancellation flag does not stand, the created image is transmitted to the core section 2 (S509). The core section 2 which received the image transmits an image to the printer section 8, prints in the form contained by a cassette 204 or 205 (drawing 2), and completes activation of Web Pull Print.

[0062] Drawing 23 is a flow chart for explaining command reception processing (S504 of drawing 22) to a detail. It judges whether it is the inquiry command of a job first as the core section 2 receives a command (S520), and a job list is acquired when it is the inquiry command of a job (S521). (S504)

[0063] Then, the job list acquired to the destination which has transmitted the command is transmitted as a message (S524). Under the present circumstances, when command transmitting origin is a print utility, the data received on the actuation screen (drawing 11) of a print utility are displayed.

[0064] When the received command is not an inquiry command of a job (S520-No), it judges continuously whether it is the Delete command of a schedule job (S522). When it is the Delete command of a schedule job, job information corresponding to the specified job number is deleted from a schedule list (S523), and it transmits to the destination which has transmitted the command by making the schedule list after deletion into a message (S524).

[0065] When the received command is not a Delete command of a schedule job, it judges whether it is the Delete command of a job instance (S525). It judges whether when it is the Delete command of a job instance (S522-No, S525-Yes), the specified job is performing by the HTTP client or HTML Parser (S526), and when it is not under activation, the job information corresponding to the specified job number is deleted from a job list instance (S527). Then, the job list after deletion is transmitted as a message to the destination which has transmitted the command (S524). Moreover, when the job which should be deleted is performing by the HTTP client or HTML Parser, a cancellation flag is set and processing is ended (S529).

[0066] When the received command is not a job Delete command instance (S525-No), it judges whether it is a job print command instance (S528). Since it is the print command of a schedule job when it is not a job print command instance, this job is registered into a schedule job list, and it ends (S531). (S530) When it is a job print command instance, processing moves to the HTTP client of S504. It does not perform that a HTTP client and HTML Parser process two or more jobs in juxtaposition at a time, but when another job processing is working, this job is registered into a job list instance, and as soon as processing finishes, it is already performed.

[0067] Drawing 24 is a flow chart which shows the processing sequence of a schedule job to a detail. Schedule job processing of S540 is started periodically once [per minute]. When it checks and exists [whether a schedule job exists and] in a schedule job list in S541, current Date/Time confirms whether have reached at the assignment beginning date / time of day of the head job of a list (S542). When having reached, the schedule print mode of a job is changed into a real time mode, and when a print directive command is transmitted (S543) and command reception processing (S502) is not reached, it ends as it is (S545).

[0068] The command transmitted to the command reception processing S502 is processed as a job instance, and is passed to URL access processing (S504), and the same processing as the above-mentioned is performed after it. After transmission of a print directive command, the core section decides on the next Web Pull Print initiation time of the job by which print directions were carried out, and registers a job to a schedule job list again (S544). And current Date/Time confirms again whether have reached at the assignment beginning date / time of day of the head job of a list (S542). Thus, by repeating processing of S542 to S544, all the schedule jobs that reached at activation time of day are performed certainly.

[0069] Drawing 25 is a flow chart which explains URL access processing to a detail.

[0070] URL is set in the URL access processing S600 (S601), and URL on a Web server is accessed by the HTML parser S602. Processing of the HTML parser S602 is mentioned later. The generator S603 which captures the text of URL and an image to a work area A (un-illustrating) edits and outputs the text and image which were captured in the

work area A to a fur mat. Then, the printout of the data which data were rasterized by the format processing S604, and were rasterized at step S605 which performs a data-processing & print is carried out. When there is URL by which the hyperlink was carried out, the following link URL is accessed.

[0071] Drawing 26 is a flow chart explaining processing of a HTML parser.

[0072] The HTML parser S602 (drawing 25) investigates the inside of directed URL one by one, and develops as image data to a work area A. If it confirms that the file type of URL can be processed by S701 (S701-Yes), URL will be accessed by HTTP at step S702. The file type linked at step S703 sweeps out URL of an image (.gif and jpg) to a work area A so that it can print.

[0073] An HTML file processes Tag by S708, and it develops as image data to a work piece A.

[0074] The information by which the hyperlink is carried out to other URL like HREF= "URL" and solvent-refined-coal= "URL" in the page of HTML by S709 is breathed out by the work area B (un-illustrating) in the range in which the link level is specified for the next access. It will end, if all of the HTML data and the image data of 1-page URL gather in S717.

[0075] If the file type which cannot be interpreted by S701 is detected, a client will be answered in (a) LPQ command response format of drawing 32 in URL which cannot process the LPQ command from a client 9 by waiting and S711. If Alternative URL is directed by (b) LPR command of drawing 32 by S712 from a client, Alternative URL will be set by S715. Alternative URL cannot be received by S713, or in not being Alternative URL in S714, it sets a printing impossible mark to a work area A by S716.

[0076] Drawing 27 is a flow chart explaining processing by the client 9.

[0077] A client 9 sends out (b) LPQ command of drawing 13 periodically by S720, and a print situation is checked. If the message of printing processing of URL is received S724 according to the response of (a) LPQ command of drawing 32 by S723, it will be confirmed whether the contents of URL can process with PC by S725.

[0078] When the printing processing problem of URL is solvable by the client 9, a client 9 accesses the URL in question by S726, and URL alternative directions are performed by (b) LPR command of drawing 32 by S729 by considering the file as Alternative URL after creating the file which interpreted URL by S727 and was developed in the image.

[0079] When printing processing of URL cannot be solved by the client 9, directions of processing impossible are performed by the LPR command by S730. The file developed by S730 is transmitted with directions of a HTTP protocol from a digital copier.

[0080] In case data are acquired and printed from a WWW server, by performing the judgment of whether to be able to print the data of the linked URL, performing data-conversion processing by the external terminal side, when it cannot print, and specifying the processing result as alternative URL, only with image formation equipment, data conversion of the data which cannot usually be printed is carried out using an external terminal, and printing of them is enabled.

[0081] (2nd operation gestalt) The URL access check processing which used other protocols ftp as 2nd operation gestalt is explained.

[0082] As shown in drawing 28 , processing of a HTML parser is explained.

[0083] The THML parser S602 (S602 of drawing 25) investigates the inside of directed URL one by one, and develops as image data to a work area A. If it confirms that URL can be processed by S801, URL will be accessed by HTTP by S802. It is breathed out by the work area A so that the file type linked by S803 can print in the case of URL of an image (.gif and jpg). An HTML file is processed in Tag by S808, and it develops as image data to a work piece A.

[0084] The information by which the hyperlink is carried out to URL of others [step S809] is breathed out by the work area B in the range in which the link level is specified for the next access. It will end, if all of the HTML data and the image data of 1-page URL gather in S817.

[0085] Detection of the file type which cannot be interpreted by S801 transmits URL which cannot be processed to a client 9 by ftp. The notice format of URL of ftp is shown in drawing 35 . If Alternative URL is directed by ftp by S812 from a client 9, Alternative URL will be set by S815. An alternative URL format of ftp is shown in drawing 36 .

[0086] Alternative URL cannot be received by S813, or in not being Alternative URL in S814, it sets a printing impossible mark to a work area A by S816.

[0087] The flow chart shown in drawing 29 explains processing by the client 9.

[0088] A client 9 checks ftp periodically by S820, and a print situation is checked. If ftp reception of the notice format of URL of drawing 36 which shows URL which cannot carry out printing processing of the URL in S824 is carried out,

it will be confirmed whether the contents of the URL in question can process with PC by S825.

[0089] When the printing processing problem of URL can be solved by the client 9, URL alternative directions are performed by ftp by S829 by considering the file as Alternative URL after creating the file which the client 9 accessed the URL in question by S826, interpreted URL by S827, and was developed in the image. An alternative URL format of ftp is shown in drawing 36. When the printing processing problem of URL cannot be solved by the client 9, directions of processing impossible are performed by alternative URL format of drawing 36 at step S831 at ftp. The file developed at step S830 is transmitted with directions of a HTTP protocol from a digital copier.

[0090] (3rd operation gestalt) The operation gestalt which receives alternative URL data by ftp from the application server 11 decided beforehand as 3rd operation gestalt is shown.

[0091] The flow chart shown in drawing 30 explains processing of a HTML parser.

[0092] The HTML parser S602 investigates the inside of directed URL one by one, and develops as image data to a work piece A. If it confirms that URL can be processed by S901, URL will be accessed by HTTP by S902. It is breathed out by the work area A so that the file type linked by S903 can print in the case of URL of an image (.gif and jpg). An HTML file is processed in Tag by S908, and it develops as image data to a work piece A. The information by which the hyperlink is carried out to URL of others [S909] is breathed out by the work area B in the range in which the link level is specified for the next access. It will end, if all of the HTML data and the image data of 1-page URL gather in S917.

[0093] URL which cannot be processed to the application server 11 beforehand decided to detect the file type which cannot be interpreted by S901 is transmitted by ftp. The notice format of URL of ftp is shown in drawing 35. If Alternative URL is directed by ftp by S912 from an application server 11, alternative URL data are stored in a work piece A by S915. An alternative URL format of ftp is shown in drawing 36.

[0094] Or Alternative URL is unreceivable by S913, in not being Alternative URL in S914, it sets a printing impossible mark to a work piece A by S916.

[0095] The flow chart shown in drawing 31 explains processing by the application server 11. An application server 11 checks ftp periodically by S920, and a print situation is checked. If the notice format of URL of ftp in printing processing of URL (drawing 35) is received by S924, it will be confirmed whether the contents of the URL in question can process with PC at step S925.

[0096] When printing processing of URL is solvable by the application server 11, an application server 11 accesses the URL in question at step S926, and URL data are transmitted by considering the file as Alternative URL (URL data format (drawing 37)) after creating the file which interpreted URL at step S927 and was developed in the image.

[0097] When printing processing of URL cannot be solved by the application server 11, discernment of processing impossible is directed into a URL data format (drawing 37) at (S925-No) and step S930.

[0098] (4th operation gestalt) As 4th operation gestalt, after specifying an application server by the control unit 5, the operation gestalt which receives the alternative URL data in ftp is shown.

[0099] As shown in drawing 33, processing of a HTML parser is explained.

[0100] The HTML parser S602 (drawing 25) investigates the inside of directed URL one by one, and develops as image data to a work area A.

[0101] If it confirms that URL can be processed at step S951, URL will be accessed by HTTP at step S952. It is breathed out by the work area A so that the file type linked by S953 can print in the case of URL of an image (.gif and jpg).

[0102] An HTML file is processed in Tag at step S958, and it develops as image data to a work piece A. The information by which the hyperlink is carried out to URL of others [S959] is breathed out by the work area B in the range in which the link level is specified for the next access. It will end, if all of the HTML data and the image data of 1-page URL gather in S967.

[0103] Detection of the file type which cannot be interpreted by S951 displays a URL information-display screen on a control unit 5 (drawing 34). It is possible to display URL458 which cannot be processed in a URL information-display screen, and to make a user 457 input an art. In this example, it is indicating that it cannot process "URL01, tif." A user can choose the printing 460 of a printing improper mark, disregard 461, and the assignment 462 of an application server as assignment of processing. This example describes the case where an application server 11 is specified. It transmits to the application server 11 which had URL which cannot be processed if Server Name 463 is specified specified by ftp. The notice format of URL of ftp is shown in drawing 35. If Alternative URL is directed by ftp at step

S962 from an application server 11, alternative URL data are stored in a work piece A by S965. An alternative URL format of ftp is shown in drawing 36.

[0104] Alternative URL cannot be received at step S963, or in not being Alternative URL at step S964, it sets a printing impossible mark to a work area A by S966. The notice format of URL of ftp is shown in drawing 35. If the data of URL of drawing 37 are directed at step S962 from an application server 11, the data which carried out ftp reception are stored in a work area A. Or the URL data of drawing 37 are unreceivable at step S963, in not being alternative URL data at step S964, it sets a printing impossible mark to a work area A.

[0105] Since it is the same as processing of drawing 31, processing of an application server 11 is omitted.

[0106] In addition, although this operation gestalt used and explained LPD and TCP/IP to the network communications protocol, the same effectiveness is acquired even if it uses communications protocols, such as IPX/SPX and Apple Talk. Moreover, although LPR/LPD was used and explained to the communications protocol between a client 9, an application server 11, and a digital copier 1, the same effectiveness is acquired even if it uses communications protocols, such as HTTP and FTP.

[0107] Moreover, although the communication link between a client 9, an application server 11, and a digital copier 1 was performed by LAN, effectiveness with the same said of carrying out by connection of P1284, SCSI, USB, etc. as local connection is acquired. Moreover, it displays on the control panel of a digital copier, and effectiveness with the same said of making a user direct processing is acquired.

[0108] In case data are acquired and printed from a WWW server, by performing the judgment of whether to be able to print the data of the linked URL, performing data-conversion processing by the external terminal and application server side, when it cannot print, and specifying the processing result as alternative URL, only with image formation equipment, data conversion of the data which cannot usually be printed is carried out using an external terminal or an application server, and printing of them is enabled.

[0109]

[Other operation gestalten] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device.

[0110] Moreover, it cannot be overemphasized by the purpose of this invention supplying the record medium which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and carrying out read-out activation of the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the record medium that it is attained.

[0111] In this case, the function of the operation gestalt which the program code itself read from the record medium mentioned above will be realized, and the record medium which recorded that program code will constitute this invention.

[0112] As a record medium for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.

[0113] Moreover, it cannot be overemphasized that it is contained also when the function of the operation gestalt which performed a part or all of processing that OS (operating system) which is working on a computer is actual, based on directions of the program code, and the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but was mentioned above by the processing is realized.

[0114] Furthermore, after the program code read from a record medium is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or a computer is equipped, it cannot be overemphasized that it is contained also when the function of the operation gestalt which performed a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped based on directions of the program code is actual, and mentioned above by the processing is realized.

[0115] Although the program code corresponding to the flow chart explained previously will be stored in the record medium when applying this invention to the above-mentioned record medium, when it explains briefly, each module shown in the example of a memory map of drawing 40 will be stored in a record medium. Namely, what is necessary is just to store the program code of each module of "the addressing module 4010", the "data acquisition module 4020" and the "judgment module 4030", the "image formation module 4040", the "printing module 4050", and the "notice module 4060" in a record medium at least.

[0116]

[Effect of the Invention] As explained above, when data are acquired and printed from a WWW server according to this invention, By performing the judgment of whether to be able to print the data of the linked URL, performing data-conversion processing by the external terminal or application server side, when it cannot print, and specifying the processing result as alternative URL Only with image formation equipment, data conversion of the data which cannot usually be printed is carried out using an external terminal or an application server, and printing of them is enabled.
[0117]

[Translation done.]